

SECTION 7: RARE PLANTS



The Long Term Water Agreement requires management of rare species to be consistent with applicable laws. The Water Dept. monitors populations of two plant species that could potentially be affected by groundwater pumping.

The Inyo County Water Department (ICWD) monitors populations of Owens Valley checkerbloom (*Sidalcea covillei*) and Inyo County star-tulip (*Calochortus excavatus*) each year in accordance with Long Term Water Agreement goals to manage rare plants in manner consistent with State and Federal laws. *S. covillei* is listed as endangered by the state of California and is a US Fish and Wildlife species of concern. Both species are listed under CNPS List 1B.1 (rare, threatened, or endangered in CA and elsewhere).

The Water Department has monitored, in total, up to 31 *S. covillei* sites and up to 33 *C. excavatus* sites from 1993-2023. In 2023, ICWD monitored four *S. covillei* sites and 31 *C. excavatus* sites. For 14 additional *S. covillei* sites that overlap with *C. excavatus* sites, *Sidalcea* were noted whether present or absent along with the phenology. Site abundance estimates are based on counts where attainable or estimates based on random sampling depending on the extent and size of populations.

Along with *C. excavatus*, and *S. covillei*, a few additional herbaceous perennial and shrub species are regularly documented on datasheets as associated species and during Owens Valley Vegetation Condition (OVVC) surveys. These species are noted as present or absent along with

the phenology or counted as part of the vegetation cover. Species of interest are Silverleaf Milkvetch (*Astragalus argophyllus* var. *argophyllus*), Wheeler's Skeletonweed (*Chaetadelpa wheeleri*), Hall's Meadow Hawksbeard (*Crepis runcinata* ssp. *hallii*), White Flowered Rabbitbrush (*Ericameria albida*), Torrey's Blazing Star (*Mentzelia torreyi*), Frog's-bit Buttercup, (*Ranunculus hydrocharoides*), and Alkali Cordgrass (*Spartina gracilis*).

In wetter years some additional annual rare plant species are documented when present and usually documented on their own or documented on datasheets as associated species and during rare plant surveys and OVVC surveys. Species of interest are Geyer's Milkvetch (*Astragalus geyeri* var. *geyeri*), Yellow Spinescape (*Goodmania luteola*), Nevada Oryctes (*Oryctes nevadensis*), Inyo Phacelia (*Phacelia inyoensis*), and Parish's Popcorn Flower (*Plagiobothrys parishii*)

Inyo County Star Tulip (*Calochortus excavatus*)

The genus *Calochortus* is distributed only in western North America from British Columbia to Guatemala (Ownbey 1940). *C. excavatus* is endemic to Inyo and

Mono Counties, occurs in snowmelt fed springs, seeps, riparian corridors, and groundwater-dependent alkali meadows between 1300 - 2000 m. *C. excavatus* reproduces by seed and by offset bulbils from the main bulb. The seeds of *Calochortus* species are relatively large and lack obvious adaptations for long-distance dispersal. Localized dispersal is likely from the inflorescence becoming stiff and springy when mature and seed tossed from the open capsule as the stalks are flung about in the wind or by animals brushing against the dried stalk. Long distance dispersal is likely facilitated by birds who consume seeds or large herbivores which graze mature fruit and move seed during annual migrations, potentially facilitating genetic differentiation at small spatial scales and parallel adaptive radiations in geographically restricted clades (Patterson 2004). The relative proportion of carbohydrate storage in below-ground bulbs and above tissues is presumably influenced by antecedent water regime and life stage. In dry years, *C. excavatus* can remain dormant in bulb form. The presence of a dormant seedbank is unknown. Plants may persist for up to ten years.



Currently there are 80 known sites supporting *C. excavatus* being monitored, all of which are in the Owens Valley in Inyo County (Table 7.1). The Water Department monitors 31 *C. excavatus* populations annually, LADWP monitors approximately six populations and the Bureau of Land Management monitors eight populations. In 2023, Inyo County staff surveyed thirty-one populations, and they are located on land owned by LADWP. Individual *C. excavatus* plants were counted using walking grids located within previously mapped population boundaries.



Table 7.1. *C. excavatus* site counts and sparkline from 1993 to 2023.

Site	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Time series 1993-2023	
C11	26	152	91	80	220	116	208	177	699	337	388	392	128	181	234	64	15	51	62	195	27	41	7	41	48	14	20	87	17	3	2		
BF				2	1			0	0	0		0	0		0	0																	
C13	18	6	58	21	25	21	17	10	6	23	18	5	8	15	18	26	6	13	8	12	4	2	0	7	23	5	6	7	0	0	12		
C14																				1974	13	6	2	7		206	54	352	27	1	307		
C15	72	46	50	104	45	100	133	98	27	13	103	7	140	112	143	68	1		5	29	1	1		0	26	7	42	41	1	2	32		
C16	282	31	500	450	400	250		687	658	991	1124	85	837	203	927	1227	68	94	38	257	190	375	20	27	901	57	257	277	57	24	238		
C16N																										232	27	117	3	0	4	31	
C16S																												201	45	6	362		
C17	105	77	180	200	111	92	114	236	432	340	286	214	408	262	167	269	145		198	389	541	317		127		176							
C18							8													35	57	31	10	0	39	98	17	121	143	2	0	21	
T581					50		44	84	96	296	82	290	457	76	183	23	276	265	40	11	32	5	43	539	8	147	238	19	5	14			
TS2				7	16	2	0	4	1	6	0	8	8	1	8	1	7	3	0	0	0	0	0	0	1	0	1	0	0	0	0		
TL													852	662	399	780	174	626	516	533	568	474	112	356	1511	428	538	700	720	827	408		
BC																			17	15	5	20	3	1	14	17	5	22	2	6	5		
C19	15	0	0	57	45	2	19	6	88	65	173	7	77	95	51	37	1	14	6	0	0	0	0	1	6	8	0	0	0	1	0		
C20	12	33	42	31	6	3	7	14	10	0	19	16	34	42	6	30	10	39	21	18	0	9	6	14	36	4	7	18	18	3	19		
C21	0	0	69	9	3	10	0	0	14	0	51	0	39	19	0	49	7	14	6	12	0	3	0	7	73	2	69	14	2	3	9		
C22	78	0	315	19	100	200	41	54	124	21	348	30	186	40	54	213	62	183	62	22	0	2	0	1	29	19	32	6	1	3	19		
ASR													166	296	18	567	34	360	135	107	8	50	0	17	196	8	555	86	43	64	134		
C168				2	0	3	0	1	0	1	0	6	0	0	0	0			0	0	0	0	0	0	7	7	5	1	2	1	4		
C28	0	2	5	1	2	4	4	0	4	0	2	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	2	0	0	1	0		
C30	120	26	450	32	14	23	0	0	1	0	2	0	260	99	0	355	2	380	151	0	0	0	0	4	59	1	16	6	2	67	24		
C31		200	400	92	90	90	100	318	627	527	1643	81	1502	506	263	1793	361	1220	814	81	36	357	36	626	1349	141	1753	820	744	1598	898		
C32	13	0	118	17	1	47	17	3	19	0	6	0	10	14	0	43	2	28	26	1	0	1	0	0	6	1	20	0	1	8	15		
C35	0			33	30	74	67	82	43	53	36	0	28	34	5	6	0	2	11	0	12	7	2	9	2	4	0	5	0	0	0		
C36		97	400	200	18	100	150	167	592	4	673	6	681	575	177	1162	0	61	165	2	0	1	0	2	128	93	126	131	18	14	45		
PLC024										345	1081	255	661	191	170	1616	505	448	141	60	222	287	45	164	256	79	293	276	203	282	378		
C37	15	1	56	55	50	17	64	76	45	20	13	7	16	86	26	59	6	42	55	4	2	8	0	0	24	10	7	12	9	2	17		
C38			36	7	2	15	17	3	1	0	3	2	17	8	5	4	3	2	0	1	0	0	0	0	2	1	0	3	0	0	3		
C39	1	0	21	3	4	15	6	5	6	5	8	4	17	6	5	14	4	3	11	3	3	2	0	1	15	0	1	11	3	6	13		
C40																																	
C44	55	1	380	150	50	100	248	689	548	90	368	90	321	130	171	320	5	155	92	11	12	36	0	11	67	131	212	158		221	122		
WBCC																											17	57	34	91	0	18	

Owens Valley Checkerbloom (*Sidalcea covillei*)

S. covillei occurs from about 1100 - 1300 m elevation in alkali meadows that are periodically wet from nearby streams, springs, or ground water in the Owens River drainage. *S. covillei*'s carbohydrate-rich roots allow it to survive drought periods but continuously dry periods are incompatible with population maintenance. *S. covillei* grows to 20-60 cm. The leaves are fleshy and waxy in texture. The inflorescence is an open panicle of several flowers. The leaves and flower sepals are coated in tiny branching hairs.

According to Halford (1993), *S. covillei* population demographics are influenced by annual precipitation, timing and intensity of cattle grazing, competition with shrubs and rhizomatous grass species, and activities that influence surface and groundwater sources. Owens Valley checkerbloom flowers from April through June. *S. covillei* flowers are visited by a variety of insect pollinators and mature plants regularly produce seed. Localized distribution is by seed fall as the inflorescences senesce or localized seed predators, and long-distance seed distribution is likely facilitated by migrating seed foraging birds and large herbivore mammals which graze the mature fruit.

In 2023, ICWD monitored five *S. covillei* sites, and fourteen additional sites were noted as present or absent while surveying for *Calochortus excavatus* and during summer monitoring of Owens Valley vegetation conditions. The number of sites monitored each year is determined by staffing levels in May.

S. covillei populations were sampled by first mapping known population locations into polygons and then either sampling individuals via randomly located quadrats, or via hand counts of flagged individuals within mapped sub-populations. Polygon boundaries were marked with flags and mapped by walking the perimeter with a GPS unit. Quadrats (approximately 1 m²) were randomly sampled within the polygon. Locations of quadrats were selected using a random bearing and a random number of paces (i.e. three sets of random paces were generated: 1-20, 1-30, 1-40 for small vs. larger polygons). The number of quadrats sampled increased with the size of the polygon; 10 was the minimum number of quadrats sampled. Annual population size estimates are for the non-dormant portion of the population (Fiedler 1998) and are thus likely underestimates of the true population size, especially in dry years when dormancy is expected to be more prevalent.



Table 7.2. *S. covillei* site counts and sparkline for time series 1993-2023.

Site	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Time series 1993-2020		
S06		0																																
UNW031																						9059												
S07		46457	78817	64299	39660														11101	17068														
S08	2000	2400	72156	27901															9716	9145														
S09	826	17356	10126	9674																29162														
S10	1800	2976	3657	10676	1996														62	946														
S11	66600	1E+05	2E+05	74003															97343	79245														
S12	64388	2E+05	84656	25149															11285	14064														
S18			181	221	350	520	625	586	754	918	921	872	834	808	715	503	350		400	682	2345	699	659	674	716	264	655	902	594	621	482			
S20		1100	1496	1582	1476														803	507	677	50												
S21		0																		335	758	149	95	130	16	82		152	132	111	61			
S22	92155	68126	2E+05	1E+05													8000		57590	57279							10020							
S25		0	2000	1500																110	93	120	144	172		33	42	190	191	43				
S27	3000		19396	8652													3000		6633	4663	9405	5348												
S28	22275	59999	77355	89502													80	4630	3444	2721	9070													
S29	600	600	9731																323	378	257	9												
Hanby												5	5	5	2	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
S31	5000		51002														1200	20574	19568	22924	53777	29973				32887	2000	8066						
S32		100	200																	61	45	51	25	70	55	41	38	25	46	14	8			
S33	150	1E+05	90974		69743		41275	42351	39938								5000		18824	17300	25843					32813		4910						
S34	106	67	171	131	129	152	223	94	113	53	75	44	72	91	70	44	0	14	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
S35			97452	43438																9278														
S36	35000		28668	12868														28463	24909	33144														
S37	0	0	0	0	0																													
S38	3	10	12	2	1														10	0	0						0	0	0	0				

Due to the abundant winter precipitation, many annuals did grow in 2023, and Inyo County staff did look for some rare annual species that are only found in the wetter years. In wetter years species of interest are Geyer's Milkvetch (*Astragalus geyeri* var. *geyeri*), Wheeler's Skeletonweed (*Chaetadelpa wheeleri*), Yellow Spinescape (*Goodmania luteola*), Nevada Oryctes (*Oryctes nevadensis*), Inyo Phacelia (*Phacelia inyoensis*), and Parish's Popcorn Flower (*Plagiobothrys parishii*).

Geyer's Milkvetch (*Astragalus geyeri* var. *geyeri*)

Astragalus geyeri var. *geyeri* occurs from at about 1200-1900m elevation in sandy fast-draining soils associated with Shadscale (*Atriplex confertiflora*) to Single-needle pinyon (*Pinus monophylla*). *A. geyeri* is rare in California, only occurring in SE Lassen County and Inyo County. The Lassen County records are from 1993 & 1997. The Inyo County records are from 1973 in the Owens Valley, and a northern Panamint Mountains record from 1937 from the head of Wood Canyon at about 1939 m elevation. This is an annual herb, stems prostrate to ascending, minutely strigose. Leaves are pinnate compound, 1.5-10 cm long, leaflets 3-13 spaced 5-15 mm apart, linear to oblong, terminal leaflet often longer than others. Inflorescence is down in foliage, 3-8 flowers per cluster, flowers ascending to reflexed, petals white to lilac-blushed, keel tip purple, banner 5.2-7.6mm, recurved 45 degrees or more, keel 3.8-4.8mm long. Fruit 15-25mm long and 6-10mm wide, inflated, distinctly curved, surface minutely strigose, thin papery, beak triangular. The seeds are small, dispersed by wind but don't go to far, and are most likely long lived.

Not since the 1973 Mary DeDecker records, has this species been recorded in Inyo County.

The DeDecker location is not GPS'ed but only a general TRS location is given. The general area was searched for a few hours by Inyo County staff in May, but no plants were found. The habitat appeared to be relatively stable with many expected shrub, and herbaceous species found, but *A. geyeri* var. *geyeri* is a relatively small plant about 10cm tall and 10-15cm wide, so plants could have been easily hidden behind a shrub and out of view. In 2017, a population of *A. geyeri* var. *geyeri* was found north Farmers Pond in the Laws USGS quadrat, since then this site has been revisited each May. In 2020, a population was found 2.9 miles south of Manzanar Reward Rd, east of the Owens River, north of the Reinhackle Gauging Station, in the sandy xeric upland above the river floodplain, and since then this site has been revisited each May.

In 2023 at the Farmers Pond location, 126 plants were found, 87% in flower and the remainder vegetative. The plants were up to 10 cm tall and 10-15cm wide. The habitat is hummocky upland, the plants occurring on the sandy hummocks not in the small 'playa-ettes' in between. Associated species are a mix of woody shrubs and herbaceous perennials and annuals that are rain-water dependent, not wetland indicator species. The area is managed as a range for cattle and has likely been this way since the late 19th Century. The area is also frequented by cottontail rabbits and jack rabbits, rodents (squirrels, mice, rats) native to the Owens Valley, Tule elk and mule deer are year-round residents, and some hawk moth larvae predation was noted on nearby plants.

in 2023 at the Reinhackle location, 162 plants were found, almost all (> 98%) were vegetative and only small the remainder were in flower. The habitat is Greasewood shrub with sandy hummocks and small playa-ettes between. Associated species are woody shrubs

and annuals that are rain-water dependent, not wetland indicator species.

Martin F. Wojciechowski & Richard Spellenberg 2017. *Astragalus geyeri* var. *geyeri*, in Jepson

Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=54745, accessed on November 01, 2017.



Farmers pond site



Reinhackle site



Farmers pond plant



Reinhackle plants

Yellow Spinescape (*Goodmania luteola*)

Goodmania luteola occurs in the Eastern Sierra of S Mono County and N Inyo County and is also found in the W Mojave Desert and San Joaquin Valley. The Inyo County records are concentrated around Klondike Lake, north of Big Pine and the south end of Fish Slough. This is an annual herb, stems prostrate and spreading to about 5-15cm wide. Leaves are cauline, blade round, 2-7mm with petioles 2-4cm long. Flowers are in clusters along long flowering stems, the clusters are subtended by ovate, spine-tipped bracts, flowers 9-15mm across, perianth with 6 yellow lobes. Fruit single seed, light-brown, 1-1.2mm, glabrous, curved, likely dispersed by wind and seed eating birds.

This species has been documented beginning in 1995 at a few *Calochortus* rare plant locations in spring and while surveying OVVC in

summer and it's noted as present or absent along with the phenology.

In 2023 *G. luteola* was documented at 2 locations while surveying other rare plants. In all locations the species is found in alkali meadows with a moderate amount of cover in desert or alkali sink habitats, and it has been found in three locations associated with *Calochortus excavatus* locations. For all locations the populations appear to be stable. Plants when found are only documented as associated species during rare plant surveys, and as vegetation cover during summer vegetation surveys.

James L. Reveal & Thomas J. Rosatti 2017. *Goodmania luteola*, in Jepson Flora Project (eds.) Jepson eFlora, <http://ucjeps.berkeley.edu/cgi>

[bin/get_IJM.pl?tid=27187](http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=27187), accessed on November 01, 2017.



Nevada Orcytes (*Oryctes nevadensis*)

Oryctes nevadensis occurs in Inyo County of California. There are records from Owens Valley (eastern Blackrock area north to Laws), Eureka Valley, and Deep Springs Valley, specimen records are only from Owens Valley locations. This is an annual herb, 5-20 cm tall and wide, stems branching near soil line from a taproot. Leaves are linear to ovate, 1-3 cm long, margin shallowly lobed and often wavy, petiole is 5-10mm with narrow wings. Flowers are in umbels emerging from upper leaf axils, flowers narrow urn-shaped 5-8mm long, purple to dusty pink. Fruit round two-valved capsule,

6-7mm across with 10-15 round, seed flat, likely dispersed by wind, and relatively long lived.

This species has been documented beginning in 1982 in the Owens Valley from SE of Lone Pine north to Laws, many sites along the old railroad line or powerline roads, likely due to the easy road access in these areas. The habitat is usually in desert sink on sandy hummocks within this habitat. In 2023 *O. nevadensis* was found at 3 locations, one being a new location for this species in Owens Valley.

Michael H. Nee 2017. *Oryctes nevadensis*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=35530, accessed on November 01, 2017.



Inyo Phacelia (*Phacelia inyoensis*)

Phacelia inyoensis is endemic to Inyo and Mono Counties of California. There are records from Owens Valley from Olancha to Laws, and southern Mono County. This is an annual herb, 3-10 cm tall and wide, stems decumbent to erect, branching at base with short stiff glandular hairs. Leaves are elliptic to obovate, 0.5-2 cm, margin entire to lobed. Flowers are on flowering stems, narrow bell-shaped 2-6 mm, pale-yellow. Fruit oblong capsule, 3-4 mm across with 18-25 small, furrowed seed, likely dispersed by wind and seed predators.

This species has been documented in Owens Valley since the early 20th Century through the present. The habitat is usually in alkali meadows or desert sink meadows usually at the edges of or in depressions within the habitat.

In 2023, *P. inyoensis* was found at 12 sites while surveying other rare plant species, and during summer surveys for Owens Valley

vegetation conditions. Due to the plentiful winter precipitation, the plants were unusually large for the species and easy to find in many places away from regularly visited rare plant sites, most of which were anecdotal observations.

When found at *Calochortus* locations they are associated species, documented as present and the phenology is noted. For *Phacelia* exclusive locations, plants are not fully documented just noted that they were present at these locations. During summer while surveying Owens Valley vegetation conditions they are included in the vegetation cover. For all locations the populations appear to be stable.

Genevieve K. Walden, Robert Patterson, Laura M. Garrison & Debra R. Hansen 2017. *Phacelia inyoensis*, Revision 1, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=37496, accessed on November 01, 2017.



Parish's Popcorn Flower (*Plagiobothrys parishii*)

Plagiobothrys parishii is endemic to Inyo, Mono, Los Angeles, and San Bernardino Counties of California. There are records from the Owens Valley from Olancho to Bishop, S Mono County, NE Los Angeles County, and C & SW San Bernardino County. This is an annual herb, 5-30 cm, stems prostrate ascending at ends, branching at base with short spreading hairs. Leaves linear to narrow lance-like, 1-5 cm, surface with hairs that have blisters at base. Flowers are on slender flowering stems, cup-shaped 3-7mm, 5 white petals with yellow base. Fruit nutlet, ovate, 0.8-1.4mm with a rib and ridges, likely dispersed by a combination of wind, water and seed predators.

This species has been documented in Owens Valley since the early 20th Century through the

present. The habitat is moist alkali meadows to mudflats around seasonal ponds. In 2023 *P. parishii* was documented at one known location during *Calochortus* or *Sidalcea* surveys. While surveying the Thibaut Ponds unit of the Blackrock Waterfowl Management Area, it was found in vegetative state and flowering in Spring and senescing in Fall, and thousands of individuals were present.

When found at other rare plant locations they are associated species, document as present and the phenology is noted. For all locations the populations appear to be stable.

Ronald B. Kelley 2017. *Plagiobothrys parishii*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=38518, accessed on November 02, 2017.





Additional perennial rare plants species that are usually found in most years. These species are not documented separately but are listed in the associated species for either *Calochortus excavatus* or *Sidalcea covillei* sites.

Silverleaf Milkvetch (*Astragalus argophyllus* var. *argophyllus*)

Astragalus argophyllus var. *argophyllus* is endemic to Inyo, Mono, and San Bernardino Counties of California. There are records from the N Owens Valley of Inyo County, S Mono County, and SC San Bernardino County. This is a perennial herb from an underground crown to 15 cm, stems prostrate to matted with numerous silvery-grey soft hairs. Leaves pinnate compound, 2-15 cm, surface with silvery-grey soft hairs, leaflets elliptic to ovate, 9-21mm l x 4-15mm w, tips acute or obtuse. Inflorescence of 1-4 flowers ascending, flowers bright pink-purple, banner 22-24mm, keel 17-20mm. Fruit 15-25mm long and 7-12mm wide,

lanceolate, straight to curved, surface with dense stringy hairs, fleshy when young maturing to stiff and leathery, seed small, flattened likely dispersed by wind and seed predators.

This species has been documented in Owens Valley since 1955 through the present. The habitat is alkali meadows. In 2023 while surveying *Calochortus*, *A. argophyllus* var. *argophyllus* was found at an expected location S of Laws and west of the Owens River.

When found it is listed as an associated species, document as present and the phenology is noted. For this location the population appears to be stable.

Martin F. Wojciechowski & Richard Spellenberg 2017. *Astragalus argophyllus* var. *argophyllus*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=54626, accessed on November 02, 2017.



Wheeler's Skeletonweed (*Chaetadelfa wheeleri*)

Chaetadelfa wheeleri is endemic to Inyo, Mono, Lassen and San Bernardino Counties of California. There are records from the Owens Valley, Deep Springs Valley, Eureka Valley and south of Old Spanish Trail Hwy near the Nevada border of Inyo County, Mono County, E Lassen County and one SW San Bernardino County record. It's generally limited to the western Great Basin, found in western & southern Nevada & very SE Oregon. This is a perennial herb 15-40cm tall, stems 2 to many, erect, emerging from a stout rhizome. Leaves linear to linear-lanceolate, 1-5cm long, green, upper cauline leaves reduced to scales. Inflorescence heads with 5 ligulate flowers per head, generally only one head at each branch tip, individual flowers cylindrical with petals flaring open at ends, cream, white or light buff colored, 11-14mm long, phyllaries in two series. Fruit a five-

sided achene with ridges separating the sides and a persistent pappus of 5 stiff awns with many bristles attached, dispersed by wind and seed predators.

This species has been documented in Owens Valley since 1974 through the present. Inyo County Water Department has documented this species at one rare plant locations since 2019. In Owens Valley, the earliest documentation is from around 1974, without specific location data, and another documentation in 1980, NE of Big Pine, S of SR 168, in the Toll House Springs Canyon wash. In nearby Mono County It has been documented in The Fish Slough Valley, Chalfant Valley, Hammil Valley and Fish Lake Valley.

In 2023, *C. wheeleri* was documented during rare plant surveys at one location, and it is documented as an associate species and its presents is noted and the phenology.

L. D. Gottlieb 2012, *Chetadelphia wheeleri*, in Jepson Flora Project (eds.) Jepson eFlora, https://ucjeps.berkeley.edu/eflora_display.php?tid=1994, accessed on August 17, 2022



Hall's Meadow Hawksbeard (*Crepis runcinata* ssp. *hallii*)

C. runcinata ssp. *hallii* is endemic to Inyo, Mono, and Alpine Counties of California. There are records from the Owens Valley and Shoshone of Inyo County, Mono County, and C Alpine County. This is a perennial herb from a taproot to 20-60 cm. Leaves oblanceolate to narrow obovate, 10-15cm l x 1.5-3cm w, green, margin toothed to lobed. Inflorescence of 1 to many heads on an erect branched stalk, flowers all ligulate, bright yellow with 5 small, pointed teeth at end of each petal. Fruit a tapered achene with a feathery pappus attached, dispersed by wind and seed predators.

This species has been documented in Owens Valley since the early 20th Century through the present. Inyo County Water Department has documented this species at 27 rare plant sites since 1993 and 15 vegetation parcels from the Owens Valley Vegetation Conditions (OVVC) surveys since 2000. The habitat is alkali meadows.

In 2023 *C. runcinata* ssp. *hallii* was documented at 15 rare plant sites surveyed. When found it is listed as an associated species, document as present and the phenology is noted. The OVVC surveys are conducted during the summer months (June-August) and the *C. runcinata* ssp. *hallii* was documented at 3 vegetation parcels in 2023 and they are listed in the cover data. Except for the inflorescences that rise well above the foliage, they can be difficult to find among the tall grasses of summer. Along with plants being often overgrown with taller species, they're also beginning to senesce so they can be difficult to find later in the growing season. For all locations the populations appear to be stable.

David Bogler 2017. *Crepis runcinata* subsp. *hallii*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=5977, accessed on November 02, 2017.



White Flowered Rabbitbrush (*Ericameria albida*)

E. albida is endemic to Inyo, Mono, and San Bernardino Counties of California. There are records from the Owens Valley, Saline Valley, N Death Valley, Amargosa Valley and Shoshone of Inyo County, S Mono County, and SW & NW San Bernardino County. This is a woody shrub, 30-150 cm, stems glabrous. Leaves linear, 2-3.5cm l, dark green, glabrous, gland dotted. Inflorescence heads in cyme-like clusters on an erect branched stalk, 5-7 disk flowers, 5-8mm, white. Fruit cylindrical to ellipsoid achene with a feathery white pappus attached, dispersed by wind and seed predators.

This species has been documented in Owens Valley since 1974 through the present. Inyo

County Water Department has documented this species at 25 locations mostly from Owens Valley Vegetation Conditions (OVVC) surveys. The habitat is alkali meadows.

In 2023 *E. albida* was documented during OVVC surveys which are conducted during the summer months (June-August). *E. albida* was documented in 2 vegetation parcels and they are listed in the cover data. The plants are easy to spot among the other vegetation because of the unique appearance of the shrubs. For all locations the populations appear to be stable.

Lowell E. Urbatsch 2017. *Ericameria albida*, in Jepson Flora Project (eds.) *Jepson eFlora*, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=81725, accessed on November 02, 2017.



Torrey's Blazing Star (*Mentzelia torreyi*)

M. torreyi is endemic to Inyo and Mono Counties of California. There are records from the Owens Valley and S White Mts of Inyo County, and Mono County. This is a perennial herb from a belowground caudex, to 10-20 cm, stems erect to decumbent, hairy. Leaves broad ovate, 2-4cm, green, deeply pinnate-lobed with 0-7 lobes, margin rolled under. Inflorescence cluster of few flowers with 2-lobed bracts, flowers bright yellow to orange-yellow, 5 petals many protruding stamens. Fruit is an urn-shaped capsule with persistent sepals on end with many fusiform spiral 3-ribbed seed, dispersed by wind and seed predators.

This species has been documented in Owens Valley since 1941 through the present. Inyo County Water Department has documented this

species at 9 vegetation parcels from the Owens Valley Vegetation Conditions (OVVC) surveys since 1994. It has also been documented from two other locations not included in the Owens Valley Vegetation Conditions (OVVC) surveys. The habitat is desert sink often in bottoms of small playas. In 2023 *M. torreyi* was documented at 2 locations during the OVVC surveys and seen but not documented at 3 other locations while conducting BWMA avian surveys. For all locations the populations appear to be stable.

Joshua M. Brokaw, John J. Schenk & Barry Prigge 2017. *Mentzelia torreyi*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=33291, accessed on November 02, 2017.



Frog's-bit Buttercup (*Ranunculus hydrocharoides*)

R. hydrocharoides is endemic to Inyo, Mono and Los Angeles Counties of California. There are records from the Owens Valley of Inyo County, Mono County, and WC Los Angeles County. This is a perennial herb growing as a wetland emergent, to 5-25 cm, stems erect to prostrate, rooting at nodes. Leaves ovate to broad ovate, 0.8-2.7cm l x 0.8-1.9cm w, base round to cordate, green, margin entire to dentate. Flowers solitary on stalks, 1cm across, 5-6 petals yellow. Fruit a lenticular achene, 1-1.4mm, dispersed by water and seed predators.

This species has been documented in Owens Valley since 1941 through the present. Inyo County Water Department has documented this species at three rare plant locations. The habitat is in creeks and ditches in slow moving water.

In 2023 *R. hydrocharoides* was not documented at any locations during rare plant surveys. In the past, it has only been found in three rare plant locations near Independence and Bishop. At one of the Bishop locations, plants are found most years from 1995 to present, but in 2023, grazing was heavy here and no plants were found. In the other Bishop location, plants have been found since 2018, but this location was not survey due to higher-than-normal water spreading in the area. At the Independence location, plants have only been found in 2011, and this location was not surveyed in 2023 due to higher-than-normal water spreading in the area. The populations are susceptible to over grazing in the ditches they grow in and may not grow much during years with heavy grazing events.

Alan T. Whittmore 2017. *Ranunculus hydrocharoides*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=40909, accessed on November 02, 2017.



Alkali Cordgrass (*Spartina gracilis*)

S. gracilis is endemic to Inyo, Mono, Modoc and Siskiyou Counties of California. There are records from Owens Valley, Little Lake & Deep Springs Valley of Inyo County, Mono County, E Modoc County and C Siskiyou County. This is a perennial grass, 18-100cm tall, stems solitary, erect, emerging from a rhizome, rooting at nodes. Leaves linear, 15-27cm l x 2.6-6mm w, green, often inrolled when young, upper surface with ridges. Inflorescence 2-12 on single stalk, 4-25cm l x 5-12mm w, compact, spikelet 6-11mm. Fruit is a small grain, dispersed by wind and seed predators.

This species has been documented in the Owens Valley since 1911 through the present. Inyo County Water Department has documented this species at 16 rare plant locations since 1996. It has been documented in the Owens Valley Vegetation Conditions (OVVC) surveys since the baseline years of the 1980's, and there are 74 documented locations

from NW Union Wash to Fish Slough USGS quadrats. There are two locations that have been extirpated since the baseline years due to expansion of gravel mine operations. The habitat is alkali meadows.

In 2023 *S. gracilis* was documented during rare plant surveys at 6 locations, and it is documented as an associate species and its presents is noted and the phenology. In 2023, *S. gracilis* was documented in 3 locations during OVVC surveys, and it is documented as vegetation cover. The populations appear to be stable. In the meadows in which it's usually found, the foliage and inflorescence stalk can easily be hidden among the more common *Sporobolus airoides* which the vegetation looks somewhat like.

John R. Baird & John W. Thieret 2003. *Spartina gracilis*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=40909, accessed on October 21, 2019.

